BOARD OF GOVERNORS
OF THE
FEDERAL RESERVE SYSTEM
WASHINGTON, D. C. 20551

BEN S. BERNANKE
CHAIRMAN

November 26, 2008

The Honorable Joe Barton
Ranking Member
Committee on Energy and Commerce
House of Representatives
Washington, D.C. 20515

Dear Congressman:

I am replying to your letter of November 19, 2008, in which you ask a number of questions with respect to the temporary reciprocal currency arrangements (i.e., swap lines) between the Federal Reserve and certain foreign central banks. Please find responses to your questions in the subsequent pages.

As requested, Federal Reserve staff will be contacting the Republican office of the Committee to discuss arrangements for a briefing for you on this matter.

Sincerely,

Enclosure

26 November 2008

Responses to Questions on Federal Reserve Swap Lines from Members of the House Committee on Energy and Commerce

The Federal Open Market Committee (FOMC) currently has authorized bilateral swap lines with fourteen foreign central banks under the authority of the Federal Reserve Act. These arrangements are designed to help improve liquidity conditions in both domestic and international financial markets and to mitigate the spread of difficulties in obtaining U.S. dollar funding in fundamentally sound and systemically important economies. In that respect, these facilities support the functioning of a safe, flexible, and stable monetary and financial system in the United States during this period of financial turbulence and assist in the pursuit of the Federal Reserve's statutory goals of maximum employment and price stability.

It is important to recognize that a drawing under these swap agreements is not a loan but, rather, an exchange of dollars for foreign currency. A foreign central bank may request one or more drawings under a swap line, but the Federal Reserve has the right to approve each drawing. Transactions are structured so that there is no foreign exchange risk to the Federal Reserve, as explained further below. The maturity of these swaps has varied from overnight to at most three months.

Please find responses to your specific questions below.

1. *To which foreign central banks has the Federal Reserve made loans and for what amounts?*

   Eight of the fourteen foreign central banks that have liquidity swap lines with the Federal Reserve drew on their lines at some point during the period from December 2007, when the first liquidity swap lines were established, to November 25, 2008. Individual drawings have been for varying amounts and for varying terms, with maturities ranging from overnight to three months. All drawings that matured during this period were repaid in full. These lines are set to expire on April 30, 2009, unless extended by mutual agreement of the Federal Reserve and our central bank counterparties. The Federal Reserve Bank of New York publishes details quarterly on the amounts drawn under these arrangements in its report on Treasury and Federal Reserve Foreign Exchange Operations. The latest report, which covers the period from July through September, is attached.

2. *What authority does the Federal Reserve have to make such loans to foreign central banks?*

   The Federal Reserve operates its swap lines under authority in the Federal Reserve Act and the authorizations, policies, and procedures established by the FOMC. Section 14 of the Act permits the Federal Reserve Banks to conduct open market operations in foreign exchange markets and to open and maintain accounts in foreign currency with foreign central banks. The legal basis for the Federal Reserve's swap arrangements has been reviewed by Congress several times since the early 1960s, and Congress has never found these arrangements to be an inappropriate use of the powers granted in the Federal Reserve Act.

3. *Why has the Federal Reserve assumed the role of world lender in lieu of the International Monetary Fund?*

   The financial turmoil of the past year and a half has disrupted the normal channels of transmission of dollar liquidity among institutions in the United States and abroad. Moreover, financing troubles abroad have at times created significant tensions in U.S. money markets, as foreign institutions sought to obtain dollar liquidity here that they had previously been able to obtain in their local markets. As these pressures continued to intensify, the Federal Reserve implemented temporary swap lines with other central banks to facilitate the functioning of domestic and international money markets. While dollar funding pressures have nonetheless persisted, the swap lines appear to have played a constructive role in limiting stresses in money markets both in the United States and abroad.

   The Federal Reserve's efforts to provide liquidity through temporary swap lines differ fundamentally from the role traditionally played by the International Monetary Fund (IMF). The Federal Reserve has concluded swap lines with a number of leading advanced economies and several emerging market economies that have pursued strong policies in recent years. By contrast, IMF lending has traditionally been provided during times of stress and when countries' economic and financial policies need to be strengthened and redirected.

   More recently, in late October, the IMF announced the establishment of its Short-term Lending Facility, a new facility that can provide liquidity to qualified emerging market countries facing temporary liquidity problems in global capital markets. The Federal Reserve is on record as welcoming the introduction of this facility and sees the new facility as broadly complementary to our swap lines with central banks. More generally, the Federal Reserve is supportive of the IMF's role in helping emerging market countries address and resolve their ongoing economic and financial difficulties and will work closely with the IMF as appropriate.

4. *What criteria does the Federal Reserve follow for the issuance of such loans?*

   The Federal Reserve has considered carefully each request for a liquidity swap facility made by a foreign central bank. A central concern has been the extent to which the envisioned swap line would help remedy dollar funding pressures around the globe and, hence, reduce resulting pressures in U.S. money markets. With this in mind, the establishment of swap facilities has generally been limited to central banks that operate in economies with the following features: the economies are economically important, in the sense that they are large in terms of GDP, or they are financially important, in the sense that they have systemically important financial centers; the economies are fundamentally sound and well-managed; and the economies are threatened by dollar funding pressures arising from the global financial turmoil. The Federal Reserve also consults as appropriate to the circumstances with the U.S. Treasury and the Department of State to make sure that any swap arrangement with a foreign central bank is consistent with U.S. policy toward the country.

5. *The agreements have been described as currency swap arrangements where the Federal Reserve provides U.S. dollars in exchange for foreign currency. What exactly is the collateral for such loans, and how much collateral is required in exchange for each U.S. dollar?*

Each Federal Reserve swap transaction with a foreign central bank is a combination of two foreign exchange transactions. In the first transaction, the Federal Reserve sells dollars to the foreign central bank in exchange for the currency of the foreign central bank. Later, at the maturity of the swap, this transaction is unwound, and the Federal Reserve sells the foreign currency back to the foreign central bank in exchange for the same amount dollars that were initially drawn. The amount of foreign currency taken by the Federal Reserve is determined by its value in foreign exchange markets on the date of the drawing and is equal in value to the quantity of dollars sold to the foreign central bank. The Federal Reserve also earns a market-based return as a part of this transaction. Because the Federal Reserve and the foreign central bank agree at the outset on the terms at which the initial transaction will be unwound, fluctuations in exchange rates and other asset prices during the interim do not alter the eventual payments between the central banks in the second leg. Thus, these swap operations are essentially void of exchange rate or other market risk.

Importantly, we judge our swap line exposures to be of the highest quality and safety. Above and beyond the protection afforded by the foreign currency that we hold in the swap transaction, our central bank counterparties are obligated to return the dollars that they have drawn. We have long and close relationships with these central banks, many of which hold substantial quantities of U.S. dollar reserves in accounts at the Federal Reserve Bank of New York, and these dealings provide a track record that justifies a high degree of trust and cooperation.

6. *What are the credit terms attached to these loans, including repayment schedules, loan duration, and remedies or other provisions for default?*

As can be seen in the attached report from the Federal Reserve Bank of New York, swap drawings are of short-term maturities, and the duration of individual swap transactions has varied from overnight to three months. Each initial transaction is reversed in full on the maturity date for the swap; there is no other scheduling of payments. When considering a request for a drawing under a swap arrangement, the Federal Reserve takes into account whether the counterparty central bank has ample capacity to repay--for example, out of its own foreign-currency reserves. The main remedy for failure to execute in the second leg of the swap transaction would be for the Federal Reserve to retain the foreign currency it acquired from the foreign central bank in the first leg of the swap. As noted above, however, we judge the probability of default on the swap to be extremely low.

7. *How would the Federal Reserve treat a default or failure to repay a loan by the foreign central bank?*

   As mentioned above, the main remedy for failure to execute in the second leg of the swap transaction would be for the Federal Reserve to retain the foreign currency it acquired from the foreign central bank in the first leg of the swap. As also noted above, however, we judge the probability of default on these swaps to be extremely low.

Attachment

TREASURY AND FEDERAL RESERVE FOREIGN EXCHANGE OPERATIONS

July–September 2008

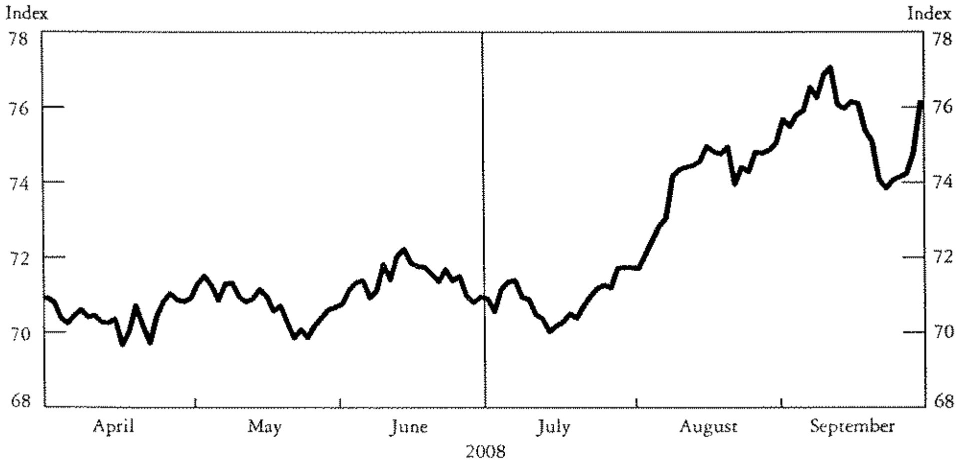
During the third quarter of 2008, the dollar's trade-weighted exchange value appreciated 7.3 percent, as measured by the Federal Reserve Board's major currencies index. The dollar appreciated 11.8 percent against the euro, but depreciated 0.1 percent against the yen. These exchange rate movements reflected rising concerns about the growth outlook for overseas economies relative to the U.S. economy, particularly as tensions in the global credit and funding markets intensified to historically extreme levels. The U.S. monetary authorities did not intervene in the foreign exchange markets during the quarter.

During the quarter, the euro–U.S. dollar currency pair traded in three distinct periods. For most of July, the dollar continued to trade near its all-time low against the euro, as concern over the health of the U.S. financial sector and its impact on the U.S. macroeconomic outlook weighed on sentiment toward the dollar. However, from the last week of July to the first week of September, the dollar appreciated broadly, as economic data indicated that growth prospects in many overseas economies were deteriorating sharply. Over the remainder of the quarter, the dollar traded in a wide range, as investors expressed great concern and uncertainty over both the global economic outlook and the health of global financial markets.

Reacting to historically elevated demand for dollar funding, during the quarter the Federal Reserve Bank of New York announced several increases in the size of the temporary currency swap facilities with the European Central Bank (ECB) and the Swiss National Bank (SNB). The New York Fed also authorized new facilities and renewed arrangements with the Bank of England (BoE), the Bank of Japan (BoJ), the Bank of Canada (BoC), the Reserve Bank of Australia (RBA), Sveriges Riksbank, Norges Bank, and the Danmarks Nationalbank.[1]

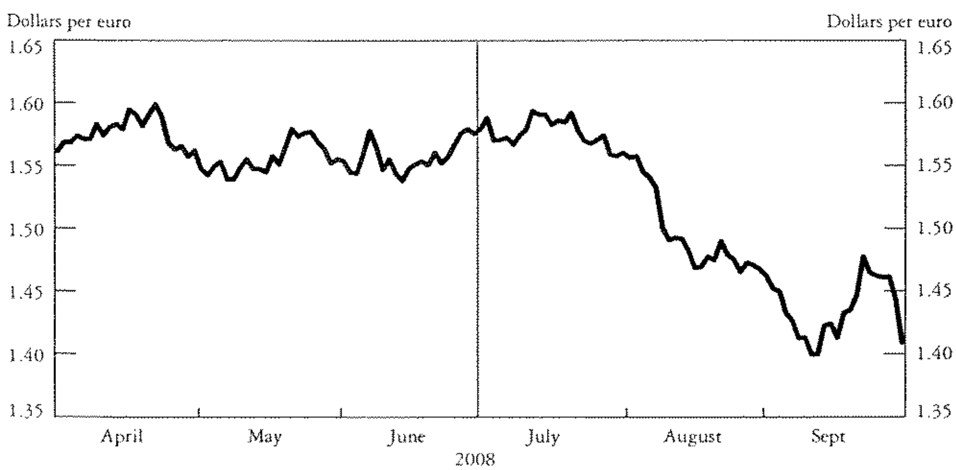
This report, presented by William Dudley, Executive Vice President, Federal Reserve Bank of New York, and Manager of the System Open Market Account, describes the foreign exchange operations of the U.S. Department of the Treasury and the Federal Reserve System for the period from July through September 2008. Alex Cohen was primarily responsible for preparation of the report.

Chart 1
TRADE-WEIGHTED U.S. DOLLAR



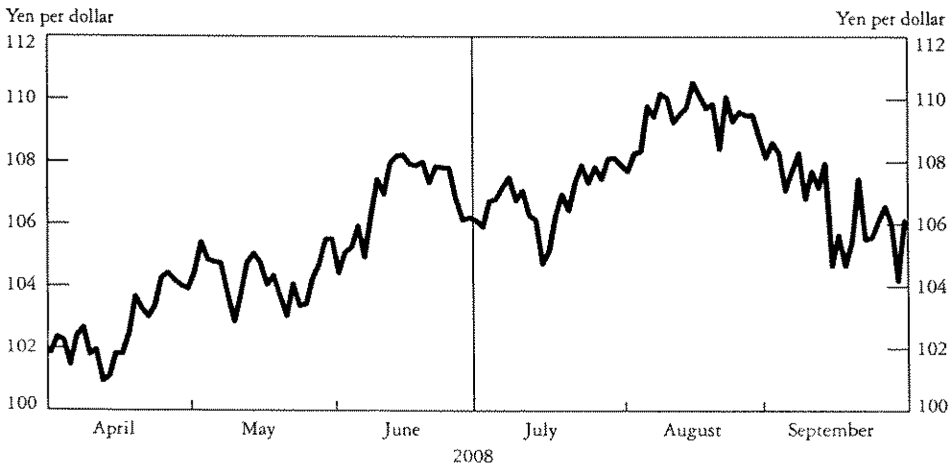
Sources: Board of Governors of the Federal Reserve System; Bloomberg L.P.

Chart 2
EURO–U.S. DOLLAR EXCHANGE RATE



Source: Bloomberg L.P.

Chart 3
U.S. DOLLAR–YEN EXCHANGE RATE



Source: Bloomberg L.P.

DOLLAR TRADES IN RANGE AGAINST THE EURO DESPITE CONTINUED CONCERNS ABOUT THE U.S. ECONOMIC OUTLOOK

During the first three weeks of July, the euro–U.S. dollar exchange rate continued to trade within the range of approximately $1.56 to $1.60, while reaching an all-time high of about $1.6040 per euro on July 15. During this period, sentiment toward the dollar remained relatively negative as concerns persisted about the impact of weakness in the U.S. financial and housing sectors on the real economy. These concerns were underscored by the failure in mid-July of California-based mortgage bank IndyMac Bank, F.S.B.—the second largest bank bankruptcy in U.S. history. In addition, during this period, concerns about the solvency of government-sponsored enterprises (GSEs) Fannie Mae and Freddie Mac intensified, as various news articles and analyst reports speculated that a government takeover of—or government support for—the firms may be necessary. On July 13, the U.S. Treasury and the Federal Reserve announced that they would provide Fannie Mae and Freddie Mac with back-stop liquidity. This announcement was generally viewed favorably, as it was perceived to reduce concerns about possible systemic risk in the U.S. financial sector and provide support to the housing sector.

[1] See <http://www.federalreserve.gov/newsevents/press/monetary/20080929a.htm>.

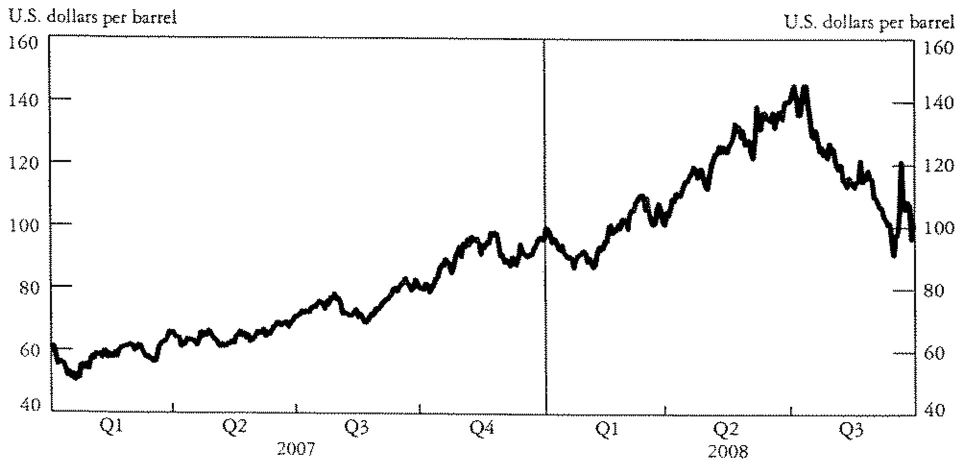
Throughout this period, market participants remained highly attuned to the relative growth prospects for the U.S. and overseas economies. Many investors continued to express optimism that overseas economic activity could remain resilient, despite widespread expectations for a U.S. economic slowdown. In the United States, growth data were mixed, as softer business confidence and retail sales data were countered by relatively better-than-expected industrial production and unemployment data. In addition, the front-month West Texas Intermediate (WTI) crude oil futures contract reached a record level of $147.27 per barrel, before moderating significantly over the remainder of the quarter.

Investor sentiment toward the euro-area economic outlook remained more favorable than sentiment toward the U.S. outlook, despite some euro-area data showing signs of slowing economic activity. On July 3, the ECB, citing lingering inflationary pressures, increased its policy rate by 25 basis points, to 4.25 percent. However, official commentary noting growth concerns and subsequent weaker-than-expected data encouraged many investors to anticipate that a cyclical turning point in euro-area economic activity had arrived. This shift in expectations for relative growth prospects between the United States and the euro area also increasingly led many market observers to suggest that the multiyear trend of dollar depreciation against the euro might soon end.

DOLLAR RISES AGAINST MOST MAJOR CURRENCIES DURING THE MIDDLE OF THE QUARTER, AS GROWTH PROSPECTS IN OVERSEAS ECONOMIES DECLINE

From the last week of July to the first week of September, the dollar appreciated against most major currencies, as signs of deteriorating growth prospects in overseas economies led many investors to discredit the notion that economic activity in these countries could "decouple" from the United States. The dollar's trade-weighted exchange value, as measured by the Federal Reserve Board's major currencies index, appreciated approximately 9.5 percent over this period. The deterioration of global growth prospects was also evident in the sharp fall in commodity prices, particularly the front-month WTI crude oil futures contract, which by the end of August had declined roughly 21 percent from its record high in July.

Chart 4
FRONT-MONTH WEST TEXAS INTERMEDIATE CRUDE OIL FUTURES CONTRACT



Source: Bloomberg L.P.

From the last week of July to the first week of September, the dollar appreciated approximately 13.7 percent against the euro, as investors sharply downgraded their economic outlook for the euro-area economy. Foreign exchange moves were driven by a series of below-expectations euro-area data releases, including the German IFO Business Climate index on July 24 and the release of euro-area GDP in mid-August. Consistently, policy expectations in the euro area shifted noticeably. Following the ECB's August 7 policy meeting, some market participants expressed disappointment that President Jean-Claude Trichet did not show greater willingness to lower policy rates, given the sharp pace at which euro-area growth appeared to be slowing. Following the meeting, rates implied by the EONIA (Euro Overnight Index Average) swap curve declined, reflecting expectations that the ECB would leave policy rates unchanged over the next twelve months. This outlook for ECB policy rates contrasted sharply with market expectations at the beginning of the quarter, when the EONIA swap curve had implied about two full 25-basis-point policy rate increases over the same time horizon.

In contrast, U.S. economic data for the beginning of the quarter were interpreted more positively. In particular, employment, consumer confidence, housing, and manufacturing data generally exceeded market participants' expectations. At the end of July, comments from several Federal Open Market Committee (FOMC) members were interpreted as emphasizing the upside risks to inflation, a development that led some investors to speculate that the FOMC's series of policy rate cuts might soon near a conclusion. Expectations for future FOMC policy rate increases grew, as reflected by the 25-basis-point rise in rates implied by the June 2009 eurodollar futures contract during the third week of July. Consistent with these significant shifts in sentiment toward relative growth prospects for the United States and the euro area as well as interest rate expectations, in early September the dollar rose to about $1.39 per euro, its highest level in almost a year.

However, from the last week of July to the first week of September, the U.S. dollar was generally little changed against the Japanese yen, trading within a range of ¥105 to ¥111 per dollar. Many suggested that the perception that Japan's financial sector was more insulated from the ongoing tightening of global credit and funding market conditions provided some support to the yen, despite signs of slowing Japanese economic activity.

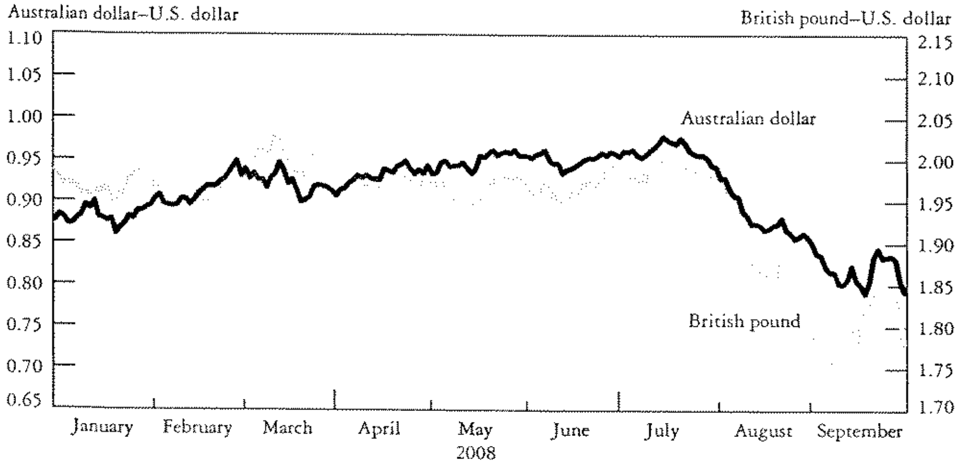
This perceived deterioration of growth prospects led several foreign central banks to begin easing policy rates or increasingly highlight downside risks to growth. The Reserve Bank of New Zealand unexpectedly reduced its official cash rate by 25 basis points, to 8.25 percent, at its July meeting. The RBA left policy rates unchanged at 7.25 percent during its August policy meeting, but its accompanying statement highlighted rising downside risks to growth. Further, while the BoE also left its policy rate unchanged at its August Monetary Policy Committee meeting, its quarterly inflation report was interpreted as placing a greater emphasis on the downside risks to growth. During the period, the U.S. dollar appreciated between approximately 13 and 20 percent against the Australian dollar, New Zealand dollar, and British pound.

Concerns about the global economic outlook were quite evident in many emerging market currencies. During the quarter, the South Korean won and Brazilian *real* each depreciated approximately 20 percent against the dollar, and the South Korean KOSPI and Brazilian Bovespa equity indexes declined 13.5 and 23.8 percent, respectively. Market participants attributed the price action in the Korean won to the deteriorating terms of trade and increasing current account deficit, given the adverse effect of slowing global growth on Korea's export sector. However, the Brazilian *real* depreciated as indications of slowing growth weighed on commodity prices, also resulting in a deterioration of terms of trade, given Brazil's reliance on commodity-related exports.

This shift in sentiment toward overseas growth prospects led international investors to make some significant portfolio adjustments—developments that benefited the dollar noticeably. In particular, as expectations for global growth fell, U.S. institutional investors, such as mutual funds and pension funds, began paring back their foreign investment holdings. Additionally, hedging activity among U.S.-based corporations, many of which reportedly chose to increase their currency-related hedges on their foreign businesses during this period, supported the dollar's broad appreciation.

Chart 5

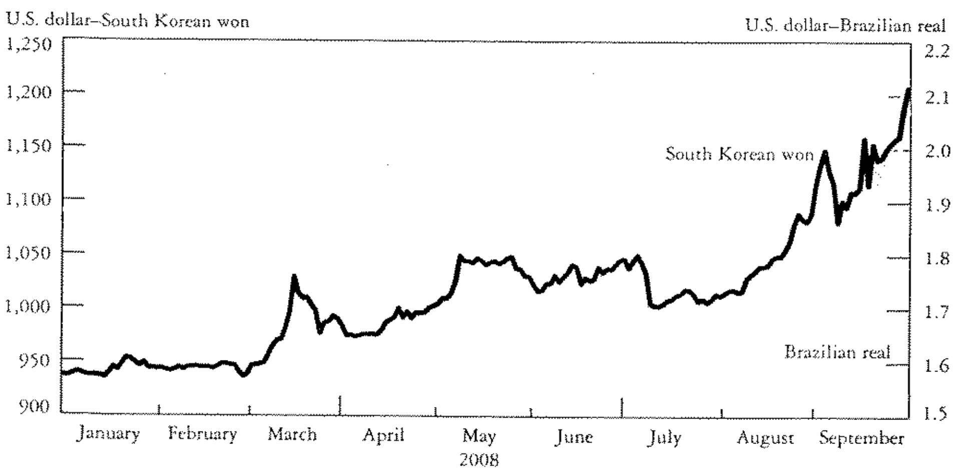
AUSTRALIAN DOLLAR–U.S. DOLLAR AND BRITISH POUND–U.S. DOLLAR EXCHANGE RATES



Source: Bloomberg L.P.

Chart 6

U.S. DOLLAR–SOUTH KOREAN WON AND U.S. DOLLAR–BRAZILIAN REAL EXCHANGE RATES



Source: Bloomberg L.P.

The deterioration in global growth prospects and capital outflows prompted many emerging market central banks to intervene to support their domestic currencies. Subsequently, some of these central bank reserve managers sought to reduce their holdings of other non-dollar major currencies to maintain a relatively steady portfolio allocation across major currencies. Market participants reported that this rebalancing activity by a number of prominent emerging market central banks provided support to the dollar against both the euro and British pound.

G-3 CURRENCIES TRADE IN WIDE RANGE AMID INTENSE CONCERN ABOUT THE HEALTH OF THE GLOBAL FINANCIAL SYSTEM

From the second week of September to the end of the third quarter, the dollar depreciated about 0.7 percent against the euro and about 1.5 percent against the Japanese yen. However, during this period, many major and emerging market currencies traded within historically wide ranges, and currency market volatility rose very sharply as concerns about the health of the global financial system intensified. The euro–U.S. dollar currency pair traded within a wide range of about $1.39 to $1.49 per euro, although it ended the quarter near $1.41 per euro, close to its lowest level since October 2007.

The announcement on September 7 that Fannie Mae and Freddie Mac would be placed in conservatorship was generally viewed positively by market participants, as it reduced uncertainty over the role of the GSEs in the financial system and their ability to provide support to the U.S. housing market and broader economy. However, concerns over the health of the U.S. financial sector increased sharply in mid-September after the investment bank Lehman Brothers Holdings Inc. announced that it had filed for bankruptcy and the Federal Reserve announced that it would provide liquidity support for the insurance company American International Group (AIG) to facilitate an orderly settlement of its business. Asset market volatility increased as confidence in the global financial system fell amid counterparty credit concerns and related funding market strains. Additionally, global equity markets declined, and spreads on financial firms' credit default swaps widened sharply. Dealers reported that liquidity conditions in the foreign exchange markets deteriorated significantly as speculative activity declined substantially, and counterparty credit concerns became very elevated. In this environment, exchange rate movements were largely driven by a historically high level of risk aversion among investors, who sought to reallocate their portfolios by holding safer assets and paring back on riskier exposures. Market participants expressed significant concern and uncertainty about the macroeconomic impact of these developments as well as the likely outlook for major exchange rates. Immediately following these developments, the dollar depreciated to about the $1.47 level against the euro and near the ¥104 level against the yen.

During the final two weeks of the quarter, market participants were focused on the U.S. Treasury's Troubled Asset Relief Program and the ensuing Emergency Economic Stabilization Act (EESA). The initial reports of these initiatives provided some support to the dollar, which recovered against the euro, appreciating by about 4.6 percent. By the end of the third quarter, the U.S. House of Representatives failed to pass the initial version of the EESA,[2] prompting a sharp sell-off in global equity markets and broad flight-to-quality flows into global sovereign debt markets. In this environment, both the yen and U.S. dollar outperformed most other major and emerging market currencies, with the euro–U.S. dollar currency pair trading near the $1.41 per euro level by the end of the quarter, close to the yearly high for the U.S. dollar. Sentiment toward the euro also deteriorated as comments from ECB officials continued to emphasize lingering inflationary risks. Consequently, many investors suggested that the euro area's real economic prospects could deteriorate significantly should the ECB not lower its policy rate at a faster pace.

The dollar's gains against the euro were supported by increasing concerns about the solvency of many European financial institutions. During the final weekend of the quarter, investors expressed great concern that several European financial institutions—including the Belgian-Dutch bank Fortis, the Belgian-French bank Dexia, and the U.K. mortgage bank Bradford and Bingley—had either been nationalized or required significant government capital injections. In addition, the German real estate company Hypo Real Estate announced plans to receive a sizable capital injection by a consortium of German banks. These developments added to negative sentiment toward the euro, as investors reacted to signs of intensifying strains on the European financial system. Notably, around this time, many market participants were focused on the Irish government's decision to place a two-year guarantee on all deposits, bonds, and debt of six Irish banks. Market participants suggested that the move highlighted the immediate need for a coordinated effort among euro-area policymakers to address potential solvency issues within the region's financial system. More generally, many market participants continued to express concern over the ECB's emphasis on lingering inflation risks, despite the significant strains on the global financial system and signs that euro-area growth was slowing dramatically.

[2] A modified version of the original EESA was passed by the Senate on October 1 and by the House of Representatives on October 3.

The yen outperformed most major and emerging market currency pairs during the final three weeks of the quarter. Elevated risk aversion toward the end of the quarter prompted a significant repatriation of capital by Japanese institutional and retail investors. Many of these investors pared back positions in higher yielding foreign investments as well as those in currencies considered sensitive to global growth and commodity prices. Additionally, the perception that the Japanese financial sector remained relatively healthy and that Japanese investors had limited exposure to overseas credit markets added to positive sentiment toward the yen. In September, the yen appreciated about 1.9 percent against the U.S. dollar to end the quarter at ¥106.11 per dollar, and appreciated between approximately 5 and 9 percent against the euro, Australian dollar, and New Zealand dollar.

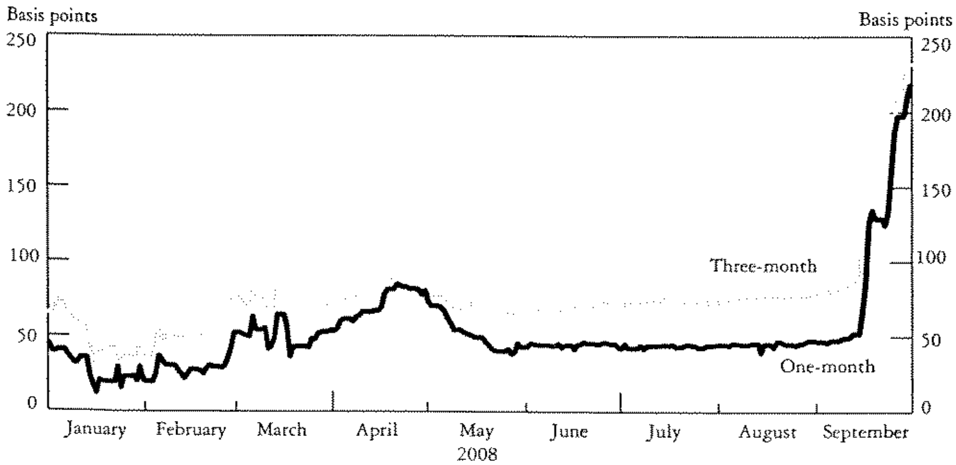
GLOBAL FUNDING AND FOREIGN EXCHANGE SWAP MARKET LIQUIDITY CONDITIONS DETERIORATE TO UNPRECEDENTED LEVELS

The sharp rise in counterparty credit concerns led to intense pressures in many global funding markets. Heightened demand for funding concurrent with elevated precautionary hoarding of cash by many institutions caused immense deterioration of term liquidity in both secured and unsecured lending markets. Many market participants reported that, as a result, some financial institutions were increasingly funding at very short-dated maturity tenors, leading to heightened concerns over potential rollover risks.

Global funding market pressures were evident in the virtual shut-down of the foreign exchange swap market. Dealers reported that bid-ask spreads on foreign exchange swaps widened to as much as ten times the levels that prevailed before August 2007. They also reported a widespread decline in interbank market making and exceptionally limited trading activity in term maturity tenors. The price action was reportedly driven by demand for dollar funding from global financial institutions, particularly European banks. As many of these institutions increasingly struggled to obtain funding in the unsecured cash markets, they turned to the collateralized foreign exchange swap market as a primary channel for raising dollar funding. This extreme demand for dollar funding led to a shift in foreign exchange forward prices, with the implied dollar funding rate observed in foreign exchange swaps on many major currencies rising sharply above that suggested by other relative interest rate measures such as the dollar OIS (Overnight Index Swap) rate and the dollar LIBOR (London Interbank Offered Rate). During the quarter, the spread of one- and three-month dollar rates implied by euro–U.S. dollar foreign exchange forward points over their respective dollar LIBOR fixing rate widened by around 415 and 245 basis points, respectively.

Chart 7

U.S. DOLLAR LIBOR–OVERNIGHT INDEX SWAP SPREAD

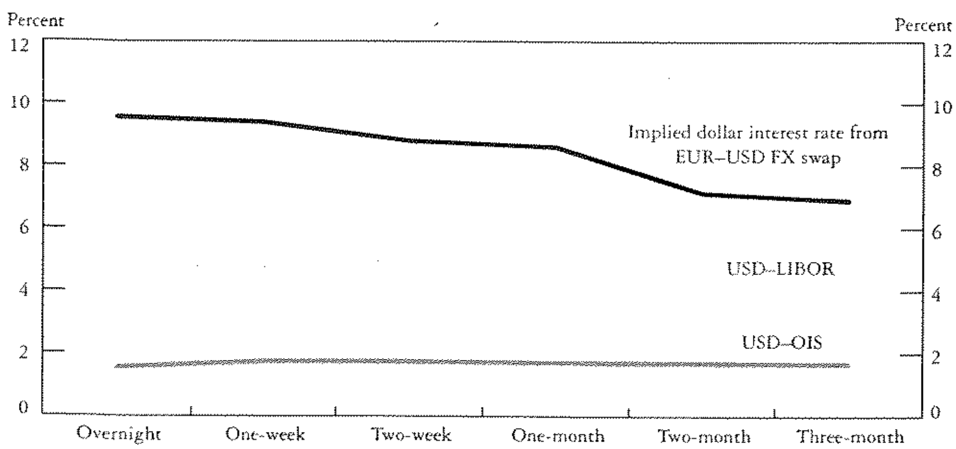


Source: Bloomberg L.P.

Note: LIBOR is the London Interbank Offered Rate.

Chart 8

U.S. DOLLAR INTEREST RATES, SEPTEMBER 30, 2008



Sources: Reuters; Bloomberg L.P.

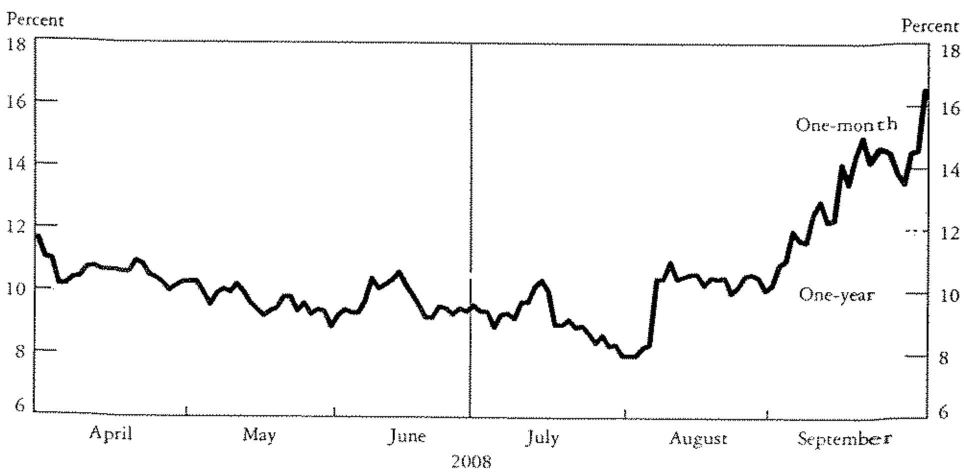
Note: LIBOR is the London Interbank Offered Rate; OIS is the Overnight Index Swap rate.

OPTION-IMPLIED VOLATILITY OF G-3 CURRENCIES RISES SHARPLY DURING THE THIRD QUARTER

Due to the elevated strains in global credit markets, option-implied volatility of most major and emerging market currencies rose to multiyear high levels. Option-implied volatility of the euro–U.S. dollar and U.S. dollar–yen currency pairs rose rapidly to levels last observed in 2000. Additionally, since mid-July, one-month option-implied volatility of the euro–U.S. dollar currency pair increased from about 9.6 percent to 17.1 percent, exceeding the levels observed in mid-March. The rise in option-implied currency market volatility was consistent with very sharp rises in volatility across global financial markets, as concerns about credit and funding market pressures intensified sharply.

Chart 9

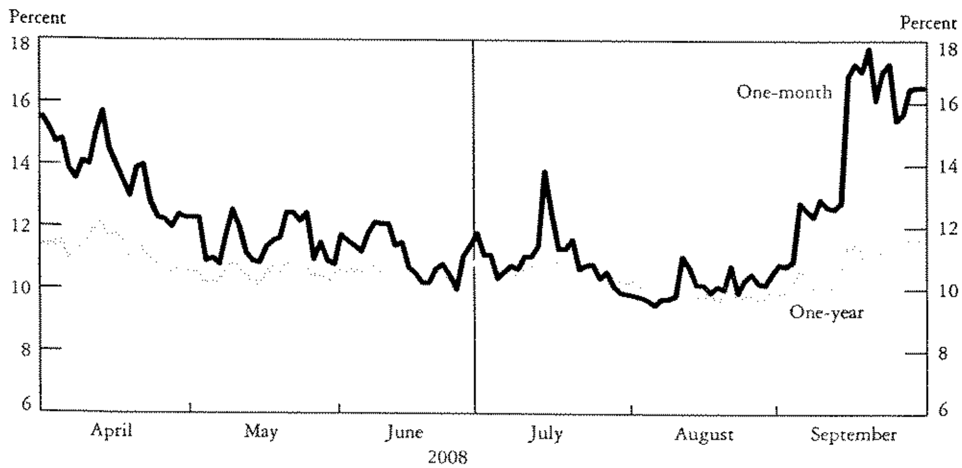
ONE-MONTH AND ONE-YEAR EURO–U.S. DOLLAR IMPLIED VOLATILITY



Source: Bloomberg L.P.

Chart 10

ONE-MONTH AND ONE-YEAR U.S. DOLLAR–YEN IMPLIED VOLATILITY



Source: Bloomberg L.P.

TEMPORARY RECIPROCAL CURRENCY ARRANGEMENTS EXPANDED WITH OTHER CENTRAL BANKS

To further address pressures in funding markets, throughout the quarter the FOMC authorized sizable increases in existing temporary reciprocal currency arrangements (swap lines) with the ECB and the SNB, while extending new swap lines to various central banks, as noted below.

Table 1

TEMPORARY RECIPROCAL CURRENCY ARRANGEMENTS

Billions of U.S. Dollars

Central Bank	Authorized Swap Line
European Central Bank	240[a]
Swiss National Bank	60[b]
Bank of England	80
Bank of Japan	120
Bank of Canada	30
Reserve Bank of Australia	30
Sveriges Riksbank	30
Norges Bank	15
Danmarks Nationalbank	15

[a]Reflects an increase of $190 billion over the previously authorized amount.

[b]Reflects an increase of $48 billion over the previously authorized amount.

TREASURY AND FEDERAL RESERVE FOREIGN EXCHANGE RESERVES

The U.S. monetary authorities did not undertake any intervention operations during the quarter. At the end of the quarter, the current value of the Federal Reserve System's Open Market Account holdings totaled $304.5 billion—consisting of $23.3 billion of foreign exchange reserve portfolio investments and $281.2 billion carrying value of outstanding swaps with the ECB, SNB, BoE, BoJ, RBA, and Danmarks Nationalbank. The current value of the U.S. Treasury's Exchange Stabilization Fund totaled $23.3 billion, comprised of euro and yen holdings. The U.S. monetary authorities invest their foreign currency balances in a variety of instruments that yield market-related rates of return and have a high degree of liquidity and credit quality. To the greatest extent practicable, the investments are split evenly between the System Open Market Account and the Exchange Stabilization Fund.

To facilitate the functioning of financial markets and provide liquidity in U.S. dollars abroad, on December 12, 2007, the FOMC authorized temporary reciprocal currency arrangements with the ECB and the SNB. Holdings related to these arrangements are included in the System Open Market Account for the first and second quarters.

As of September 24, the FOMC authorized increases in existing temporary reciprocal currency arrangements with the ECB and the SNB, and extended new swap lines to various central banks. As of September 29, the authorized swap line amounts were as follows: $240 billion for the ECB, reflecting an increase of $190 billion over the previously authorized amount; $60 billion for the SNB, reflecting an increase of $48 billion over the previously authorized amount; $80 billion for the BoE; $120 billion for the BoJ; $30 billion for the BoC; $30 billion for the RBA; $30 billion for Sveriges Riksbank; $15 billion for Norges Bank; and $15 billion for the Danmarks Nationalbank.

All reciprocal currency arrangements have been authorized through April 30, 2009. As of September 30, the ECB had drawn down $174.7 billion, the SNB had drawn down $28.9 billion, the BoE had drawn down $40.0 billion, the BoJ had drawn down $29.6 billion, the RBA had drawn down $10 billion, and the Danmarks Nationalbank had drawn down $5 billion, while the BoC, Sveriges Riksbank, and Norges Bank had yet to draw down on their swap lines.

A significant portion of the U.S. monetary authorities' foreign exchange reserves is invested in European and Japanese government securities. On an outright basis, the U.S. monetary authorities hold German, French, and Japanese government securities. Under euro-denominated repurchase agreements, the U.S. monetary authorities accept sovereign debt backed by the full faith and credit of the following governments: Belgium, France, Germany, Italy, the Netherlands, and Spain. Foreign currency reserves are also invested at the Bank for International Settlements and in facilities at other official institutions. As of September 30, direct holdings of foreign government securities totaled $21.1 billion, split evenly between the System Open Market Account and the Exchange Stabilization Fund. Foreign government securities held under repurchase agreements totaled $7.3 billion at the end of the quarter and were also split evenly between the two authorities.

Table 2

FOREIGN CURRENCY HOLDINGS OF U.S. MONETARY AUTHORITIES BASED ON CURRENT EXCHANGE RATES

Millions of U.S. Dollars

		Change in Balances by Source				
	Carrying Value, June 30, 2008[a]	Net Purchases and Sales[b]	Investment Earnings[c]	Realized Gains/Losses on Sale[d]	Unrealized Gains/ Losses on Foreign Currency Revaluation[e]	Carrying Value, September 30, 2008[a]
Federal Reserve System Open Market Account (SOMA)						
Euro	66,571.6	124,742.0	549.3	0	(7,474.1)[f]	184,388.7
Swiss franc	12,235.3	16,900.0	86.2	0	(883.5)[f]	28,338.1
Japanese yen	8,994.7	29,622.0	32.7	0	(86.5)[f]	38,563.0
Canadian dollar	0.0	0.0	0.0	0	0.0[f]	0.0
British pound	0.0	39,999.0	29.4	0	(1,109.3)[f]	38,919.1
Danish krone	0.0	5,000.0	0.5	0	(178.7)[f]	4,821.8
Australian dollar	0.0	10,000.0	1.8	0	(537.5)[f]	9,464.2
Swedish krone	0.0	0.0	0.0	0	0.0[f]	0.0
Norwegian krone	0.0	0.0	0.0	0	0.0[f]	0.0
Total	87,801.6	226,263.0	699.9	0	(10,269.6)	304,494.9
U.S. Treasury Exchange Stabilization Fund (ESF)						
Euro	15,798.5	0	151.4	0	(1,679.5)	14,270.5
Japanese yen	8,994.7	0	16.0	0	19.8	9,030.5
Total	24,793.2	0	167.4	0	(1,659.7)	23,300.9

Note: Figures may not sum to totals because of rounding.

[a] Carrying value of the reserve asset position includes interest accrued on foreign currency, which is based on "day of" accrual method.

[b] Net purchases and sales include foreign currency purchases related to official activity, swap drawings and repayments, and warehousing.

[c] Investment earnings include accrued interest and amortization on outright and swap-related holdings.

[d] Gains and losses on sales are calculated using average cost.

[e] Reserve asset balances are revalued daily at the noon buying rates.

[f] Valuation adjustments on swap-related euro and Swiss franc holdings do not affect profit and loss because the impact is offset by the unwinding of the forward contract at the repayment date.

Table 3

BREAKDOWN OF FOREIGN RESERVE ASSETS HELD

Carrying Value in Millions of U.S. Dollars, as of September 30, 2008

	U.S. Treasury Exchange Stabilization Fund (ESF)[a]	Federal Reserve System Open Market Account (SOMA)[a]
Euro-denominated assets:	14,270.5	184,388.7
Cash held on deposit at official institutions	5,997.2	6,021.0
Other assets[b]	—	170,094.5
Marketable securities held under repurchase agreements[c]	3,651.6	3,651.6
Marketable securities held outright	4,621.6	4,621.6
German government securities	1,981.6	1,981.6
French government securities	2,640.0	2,640.0
Swiss-franc-denominated assets:	—	28,338.1
Other assets[b]	—	28,338.1
Yen-denominated assets:	9,030.5	38,563.0
Cash held on deposit at official institutions	3,108.8	3,108.8
Marketable securities held outright	5,921.6	5,921.6
Other assets[b]		29,532.5
Canadian-dollar-denominated assets:		0
Other assets[b]		0
British-pound-denominated assets:		38,919.1
Other assets[b]		38,919.1
Danish-krone-denominated assets:		4,821.8
Other assets[b]		4,821.8
Australian-dollar-denominated assets:		9,464.2
Other assets[b]		9,464.2
Swedish-krone-denominated assets:		0
Other assets[b]		0
Norwegian-krone-denominated assets:		0
Other assets[b]		0

Note: Figures may not sum to totals because of rounding.

[a]As of September 30, the euro and yen portfolios had Macaulay durations of 9.1 months and 10.6 months, respectively, for both the ESF and SOMA portfolios.

[b]Carrying value of outstanding reciprocal currency swaps with the European Central Bank, the Swiss National Bank, the Bank of Japan, the Bank of Canada, the Bank of England, the Danmarks Nationalbank, the Reserve Bank of Australia, Sveriges Riksbank, and Norges Bank.

[c]Sovereign debt obligations of Belgium, France, Germany, Italy, the Netherlands, and Spain are presently eligible collateral for reverse repo transactions.

Table 4

RECIPROCAL CURRENCY ARRANGEMENTS

Millions of U.S. Dollars

Institution	Amount of Facility	Outstanding as of September 30, 2008
	Federal Reserve System Open Market Account (SOMA)	
Bank of Canada	2,000	0
Bank of Mexico	3,000	0
European Central Bank[a]	240,000	174,742
Swiss National Bank[a]	60,000	28,900
Bank of Japan[a]	120,000	29,622
Bank of Canada[a]	30,000	0
Bank of England[a]	80,000	39,999
Danmarks Nationalbank[a]	15,000	5,000
Reserve Bank of Australia[a]	30,000	10,000
Sveriges Riksbank[a]	30,000	0
Norges Bank[a]	15,000	0
Total	625,000	288,263
	U.S. Treasury Exchange Stabilization Fund (ESF)	
Bank of Mexico	3,000	0
Total	3,000	0

[a] Temporary swap arrangement.

Table 5

DAILY SWAP FACILITY ACTIVITY

U.S. Dollars

Date	Drawings	Repayments	Amount Outstanding
		European Central Bank	
7/3/08	25,000,000,000	25,000,000,000	50,000,000,000
7/17/08	25,000,000,000	25,000,000,000	50,000,000,000
7/31/08	25,000,000,000	25,000,000,000	50,000,000,000
8/14/08	30,000,000,000	25,000,000,000	55,000,000,000
8/28/08	20,000,000,000	25,000,000,000	50,000,000,000
9/11/08	20,000,000,000	20,000,000,000	50,000,000,000
9/18/08	40,000,000,000		90,000,000,000
9/19/08	40,000,000,000	40,000,000,000	90,000,000,000
9/22/08	40,000,000,000	40,000,000,000	90,000,000,000
9/23/08	40,000,000,000	40,000,000,000	90,000,000,000
9/24/08	40,000,000,000	40,000,000,000	90,000,000,000
9/25/08	65,000,000,000	60,000,000,000	95,000,000,000
9/26/08	65,000,000,000	40,000,000,000	120,000,000,000
9/29/08	30,000,000,000	30,000,000,000	120,000,000,000
9/30/08	84,742,000,000	30,000,000,000	174,742,000,000
		Swiss National Bank	
7/3/08	6,000,000,000	6,000,000,000	12,000,000,000
7/17/08	6,000,000,000	6,000,000,000	12,000,000,000
7/31/08	6,000,000,000	6,000,000,000	12,000,000,000
8/14/08	6,000,000,000	6,000,000,000	12,000,000,000
8/28/08	6,000,000,000	6,000,000,000	12,000,000,000
9/11/08	4,000,000,000	4,000,000,000	12,000,000,000
9/18/08	10,000,000,000		22,000,000,000
9/19/08	10,000,000,000	10,000,000,000	22,000,000,000
9/22/08	10,000,000,000	10,000,000,000	22,000,000,000
9/23/08	10,000,000,000	10,000,000,000	22,000,000,000
9/24/08	10,000,000,000	10,000,000,000	22,000,000,000
9/25/08	18,000,000,000	16,000,000,000	24,000,000,000
9/26/08	11,900,000,000	10,000,000,000	25,900,000,000
9/29/08	8,239,000,000	7,000,000,000	27,139,000,000
9/30/08	10,000,000,000	8,239,000,000	28,900,000,000
		Bank of Japan	
9/25/08	29,622,000,000		29,622,000,000

Table 5

DAILY SWAP FACILITY ACTIVITY (CONTINUED)

U.S. Dollars

Date	Drawings	Repayments	Amount Outstanding
		Bank of Canada	
		Bank of England	
9/18/08	14,050,000,000		14,050,000,000
9/19/08	20,800,000,000	14,050,000,000	20,800,000,000
9/22/08	26,150,000,000	20,800,000,000	26,150,000,000
9/23/08	30,101,000,000	26,150,000,000	30,101,000,000
9/24/08	29,900,000,000	30,101,000,000	29,900,000,000
9/25/08	35,045,000,000	29,900,000,000	35,045,000,000
9/26/08	40,000,000,000	35,045,000,000	40,000,000,000
9/29/08	9,999,000,000	10,000,000,000	39,999,000,000
9/30/08	9,999,000,000	9,999,000,000	39,999,000,000
		Danmarks Nationalbank	
9/30/08	5,000,000,000		5,000,000,000
		Reserve Bank of Australia	
9/29/08	10,000,000,000		10,000,000,000
		Sveriges Riksbank	
		Norges Bank	